GROUND Water Quality Technical Report No. 3

Idaho Snake-Payette Rivers Hydrologic Unit Ground Water Quality Assessment

Idaho Department of Health and Welfare
DIVISION OF ENVIRONMENTAL QUALITY
WEST CENTRAL IDAHO REGIONAL OFFICE
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GROUND WATER QUALITY TECHNICAL REPORT NO. 3

IDAHO SNAKE-PAYETTE RIVER HYDROLOGIC UNIT GROUND WATER QUALITY ASSESSMENT

WEST CENTRAL IDAHO

Prepared by

Robert Steed, Gerry Winter, and John Cardwell
1410 North Hilton Street
Boise, Idaho 83706

Idaho Department of Health and Welfare
Division of Environmental Quality
1410 N. Hilton Street
Boise, Idaho 83706

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Abstract

Idaho Snake-Payette Rivers Hydrologic Unit Ground Water Quality Assessment, West Central Idaho

The Idaho Snake-Payette Water Quality Hydrologic Unit Project is one of the 74 projects funded nationally by the United States Department of Agriculture (USDA). The purpose of these 5-year, federally funded projects is to accelerate the transfer of technology necessary to protect ground water and surface water quality while maintaining farm profitability. This report contributes to the first phase of this project which is to determine the nature of ground water quality problems in the study area.

The objectives of this report are to identify the extent of non-point source pollution of ground water from pesticides and nutrients and to pinpoint problem areas and to quantify nutrients and/or pesticides present in ground water by analyzing available data.

The Snake-Payette Rivers Hydrologic Unit area is located primarily in the west central part of Idaho, with the exception of a small portion that is located in eastern Oregon. The Snake-Payette Rivers Hydrologic Unit contains over 840,000 acres, within portions of five Idaho counties, Adams, Canyon, Gem, Payette, and Washington, and a portion of Malheur County, Oregon. Generally the soils found in the hydrologic unit are derived from **basaltic** volcanic rocks, or sediments of **lacustrine**, **fluvial**, and **eolian** origin. There are two different geologic regimes within the hydrologic unit. The first, which is extensively used for agricultural land, is dominated by lacustrine and fluvial deposits. The second which is sparsely populated and left as open range, is dominated by volcanic deposits. The principle aquifers in the basin are in the Miocene basaltic rocks, the overlying Tertiary sediments (Glenns Ferry Formation), and Quaternary sediments. Ground water occurs under artesian and water table conditions in these aquifers. Shallow water table conditions exist throughout the hydrologic unit.

The data used in this hydrologic unit ground water assessment were generated from three sources. These sources are the Idaho Farm Bureau Federation reconnaissance ground water quality surveys (**IFBF/RGWQS**), IDEQ special projects, and the **USGS/WRD** data base. There were a total of 436 samples considered.

The preparation of this assessment required construction of a data base from existing data. Once this data base was completed, the data were used for Geographic Information System (**GIS**) analysis and other statistical analysis.

Within the hydrologic unit there have been 63 ground water samples analyzed for pesticides. Of these 63 ground water samples, there have been 41 detections of five different pesticide compounds from 30 different locations. Of these 41 detections, 29 are Dacthal (or acid metabolite), nine are Pentachlorophenol, one is 2,4-D, one is Diazinon, and one is Metribuzin.

From the results generated by this study of the pesticide, nitrate, and vulnerability data, the critical areas of the non-point source pollution of ground water within or proximal to the hydrologic unit are located in the western portion of the lower Payette River valley, most of the portion of Canyon County that is within the hydrologic unit, and the Sunnyside area, south of Weiser.